This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-29 (cancelled)

Claim 30 (currently amended): ~~Device according to claim 29,~~ Device for the optical excitation of laser-active crystals, with a diode laser (1) which generates pump radiation (2), the laser-active crystal being arranged in a solid-state laser or solid-state laser amplifier and the laser-active crystal having an axis (C) with strong absorption and an axis (A) with weak absorption, comprising: an optical element (4) is arranged downstream of the diode laser (1) in order to achieve spatial shaping of the pump radiation from the diode laser (1) and in that the pump radiation (2) from the diode laser (1) is substantially polarised linearly in a privileged polarisation direction, and in that the polarisation direction of the pump radiation (2) is oriented parallel to the weak-absorption axis (A) of the laser-active crystal (14) when it is incident in the laser-active crystal (14); and

wherein the laser-active crystal (14) has at least a first and a second end face (14a, 14b) which have a polarisation-dependent transmission, and in that the polarisation direction of the pump radiation (2) is oriented so that the reflection losses at the first or second end faces (14a, 14b) are minimal and the optical power which enters the laser-active crystal (14) is maximal.

Claim 31 (currently amended): ~~Device according to claim 29,~~ Device for the optical excitation of laser-active crystals, with a diode laser (1) which generates pump radiation (2), the laser-active crystal being arranged in a solid-state laser or solid-state laser amplifier and the laser-active crystal having an axis (C) with strong absorption and an axis (A) with weak absorption, comprising: an optical element (4) is arranged downstream of the diode laser (1) in order to achieve spatial shaping of the pump radiation from the diode laser (1) and in that the pump radiation (2) from the diode laser (1) is substantially polarised linearly in a privileged polarisation direction, and in that the polarisation direction of the pump radiation (2) is oriented parallel to the weak-absorption axis (A) of the laser-active crystal (14) when it is incident in the laser-active crystal (14); and

wherein the solid-state laser or solid-state laser amplifier comprises a laser resonator (27) with a multiplicity of mirrors (28, 29, 30), the surfaces of which are provided with polarisation-dependent transmission, and in that the polarisation direction of the pump radiation (2) is oriented so that the reflection losses at these surfaces are minimal and the optical power which enters the laser-active crystal (14) is maximal.

Claim 32 (currently amended): Device according to claim ~~29~~ 31, wherein the laser-active crystal (14) consists of $Nd:YVO_4$, $Nd:GdVO_4$, Nd:LSB, $Nd:YA1O_3$, Nd:YLF or Nd:BEL.

Claim 33 (currently amended): Device according to claim ~~29~~ 31, wherein the laser-active crystal (14) consists of $Nd:YVO_4$ with neodymium doping of more than 0.5% (at.).

Claim 34 (currently amended): Device according to claim ~~29~~ 31, wherein the optical element (4) is configured in the form of micro-optics.

Claim 35 (currently amended): ~~Device according to claim 29,~~ Device for the optical excitation of laser-active crystals, with a diode laser (1) which generates pump radiation (2), the laser-active crystal being arranged in a solid-state laser or solid-state laser amplifier and the laser-active crystal having an axis (C) with strong absorption and an axis (A) with weak absorption, comprising: an optical element (4) is arranged downstream of the diode laser (1) in order to achieve spatial shaping of the pump radiation from the diode laser (1) and in that the pump radiation (2) from the diode laser (1) is substantially polarised linearly in a privileged polarisation direction, and in that the polarisation direction of the pump radiation (2) is oriented parallel to the weak-absorption axis (A) of the laser-active crystal (14) when it is incident in the laser-active crystal (14); and

wherein the optical element (4) is designed in the form of a polarisation-preserving waveguide, in order to achieve spatial shaping of the pump radiation (2) from the diode laser (1), the polarisation-dependent waveguide consisting, for example, of a glass rod or an optical fibre.

Claims 36-38 (canceled):

Claim 39 (currently amended): ~~Device according to claim 38,~~ Device for the optical excitation of laser-active crystals, with a diode laser (1) which generates pump radiation (2), the laser-active crystal being arranged in a solid-state laser or solid-state laser amplifier and the laser-active crystal having an axis (C) with strong absorption and an axis (A) with weak absorption, comprising: an optical element (4) is arranged downstream of the diode laser (1) in order to achieve spatial shaping of the pump radiation from the diode laser (1) and in that the pump radiation (2) from the diode laser (1) is substantially polarised linearly in a privileged polarisation direction, and in that the polarisation direction of the pump radiation (2) is oriented parallel to the weak-absorption axis (A) of the laser-active crystal (14) when it is incident in the laser-active crystal (14);

wherein the second end face (14b) of the laser-active crystal (14) is assigned a reflector (52), which reflects the unabsorbed pump radiation (50) that was injected through the first end face (14a), and injects it into the second end face (14b) as reflected pump radiation (54); and

wherein the laser-active crystal (14) has doping and a length which are selected so that less than 70% of the pump radiation (2) can be absorbed in the laser-active crystal (14) after entering through the first end face (14a).

Claim 40 (previously presented): Device according to claim 39, wherein approximately 50 to 60% of the pump radiation (2) can be absorbed in the laser-active crystal (14) after entering through the first end face (14a).

Claim 41-44 (canceled):

Claim 45 (currently amended): ~~Method according to claim 43,~~ Method for the optical excitation of laser-active crystals with a diode laser (1), the laser-active crystal (14) being arranged in a solid-state laser or solid-state laser amplifier, comprising:

- spatially shaping pump radiation (2) generated by the diode laser (1) with an optical element (4), the shaped pump radiation (2) having a polarisation direction, and
- projection onto a laser-active crystal (14), which has an axis (C) with strong absorption and an axis (A) with weak absorption, so that the polarisation direction of the pump radiation (2) is oriented parallel to the weak-absorption axis (A) of the laser-active crystal (14); and

wherein the laser-active crystal (14) has at least a first and a second end face (14a, 14b) which have a polarisation-dependent transmission, and in that the polarisation direction of the pump radiation (2) is oriented so that the reflection losses at the first or second end faces (14a, 14b) are minimal and the optical power which enters the laser-active crystal (14) is maximal.

Claim 46 (currently amended): ~~Method according to claim 43,~~ Method for the optical excitation of laser-active crystals with a diode laser (1), the laser-active crystal

(14) being arranged in a solid-state laser or solid-state laser amplifier, comprising:

- spatially shaping pump radiation (2) generated by the diode laser (1) with an optical element (4), the shaped pump radiation (2) having a polarisation direction, and

- projection onto a laser-active crystal (14), which has an axis (C) with strong absorption and an axis (A) with weak absorption, so that the polarisation direction of the pump radiation (2) is oriented parallel to the weak-absorption axis (A) of the laser-active crystal (14); and

wherein the solid-state laser or solid-state laser amplifier comprises a laser resonator (27) with a multiplicity of mirrors (28, 29, 30), the surfaces of which are provided with polarisation-dependent transmission, and in that the polarisation direction of the pump radiation (2) is oriented so that the reflection losses at these surfaces are minimal and the optical power which enters the laser-active crystal (14) is maximal.

Claim 47 (currently amended): Method according to claim ~~43~~ 46, wherein the laser-active crystal (14) consists of $Nd:YVO_4$, $Nd:GdVO_4$, Nd:LSB, $Nd:YA1O_3$, Nd:YLF or Nd:BEL.

Claim 48 (currently amended): Method according to claim ~~43~~ 46, wherein the laser-active crystal (14) consists of $Nd:YVO_4$ with neodymium doping of more than 0.5% (at.).

Claims 49-50 (canceled):

Claim 51 (currently amended): ~~Method according to claim 50,~~ Method for the optical excitation of laser-active

crystals with a diode laser (1), the laser-active crystal (14) being arranged in a solid-state laser or solid-state laser amplifier, comprising:

- spatially shaping pump radiation (2) generated by the diode laser (1) with an optical element (4), the shaped pump radiation (2) having a polarisation direction, and
- projection onto a laser-active crystal (14), which has an axis (C) with strong absorption and an axis (A) with weak absorption, so that the polarisation direction of the pump radiation (2) is oriented parallel to the weak-absorption axis (A) of the laser-active crystal (14);

wherein pump radiation (52) emerging from the second end face (14b) of the laser-active crystal (14) is reflected by a a reflector (52), and re-enters the laser-active crystal (14) as reflected pump radiation (54) through the second end face (14b); and

wherein the laser-active crystal (14) has doping and a length which are selected so that less than 70% of the pump radiation (2) can be absorbed in the laser-active crystal (14) after entering through the first end face (14a).

Claim 52 (previously presented): Method according to claim 51, wherein approximately 50 to 60% of the pump radiation (2) is absorbed in the laser-active crystal (14) after entering through the first end face (14a).

Claim 53-54 (canceled):